

CLAIMS

1/ A method of assembling two tubes of a sea pipe-line on a barge or on land, and of insulating the assembly zone by means of a thermally insulating outer coating that is watertight and that withstands external pressure, the coating being obtained by allowing a substance applied to the tubes to harden, in which method use is made of metal tubes (T1, T2) that can be assembled together mechanically to predetermined final relative positions, and prior to assembly, individual insulating and sealing coatings (R1, R2) are made on the assembly ends of the tubes, said coatings being shaped and dimensioned in such a manner that in said predetermined final relative positions they are continuous or quasi-continuous, the tubes coated in this way are assembled together, and if any residual gap remains between the coatings, it is filled with an adhesive or a sealing compound.

2/ A method according to claim 1, in which the coatings are shaped to present facing front end joint surfaces that are plane and parallel, extending perpendicularly to the axis of the tubes or sloping in one direction or the other.

3/ A method according to claim 1 or claim 2, in which the coatings are made of elastomer material and are shaped and dimensioned so as to penetrate in part one into the other during assembly, thereby presenting overlapping surfaces (13, 14).

4/ A method according to claim 3, in which the coatings are of elastomer material and are shaped to present respective overlapping surfaces (13, 14) of complementary crenellated or corrugated shapes.

5/ A method according to claim 3 or claim 4, in which grease is applied to the overlapping surfaces of the

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coatings so as to facilitate the penetration of one coating into the other during assembly.

5 6/ A method according to claims 3 to 5, in which the overlapping surfaces (13, 14) of the coatings are protected temporarily by means of removable caps (5, 6) engaged on or in the tubes, which caps are removed prior to assembly.

10 7/ A method according to any one of claims 1 to 6, in which, after assembly, the assembly zone is surrounding by a heat-shrink sleeve (M).

15 8/ Metal piping tubes for implementing a method according to any one of claims 1 to 7, characterized in that they are suitable for being assembled together by inserting and fixing a male assembly end and a "male" tube (T1) a certain distance into a female assembly end of the other tube (T2) referred to as the "female" tube, and in that
20 the assembly ends of the tubes are provided, prior to assembly, with respective outer coatings (R1, R2) that are thermally insulating, waterproof, and that withstand external pressure, the coatings being shaped and dimensioned in such a manner that after assembly they
25 leave between them a gap of small or zero width.

9/ Piping tubes according to claim 8, in which the female assembly end is defined by a female end (1a) of a connector (1) integrated with the female tube (T2) by
30 screwing, for example, while the male assembly end is defined by one end (2) of the male metal tube (T1) itself.

10/ Piping tubes according to claim 8 or claim 9, in
35 which the coatings (R1, R2) preformed on the two tubes present facing annular front end surfaces (7, 8) which are plane and parallel, being perpendicular to the axis

of the tubes or sloping relative thereto in one direction or the other.

11/ Piping tubes according to claim 10, in which the
5 front surface (7) of the outer coating (R2) of the
assembly end of the female tube lies substantially in the
front end plane (E) of the connector (1) while the front
end surface (8) of the outer coating (R1) of the assembly
10 end of the male tube lies substantially in the plane (L)
defining the rear limit of the insertion zone of said
tube into the connector so that once assembly has been
performed the facing front end surfaces (7, 8) of the
outer coatings leave between them a gap (i) of zero or
almost zero width.

12/ Piping tubes according to claim 8 or claim 9, in
15 which said outer coatings are of elastomer material, the
coating of the assembly end of one of the tubes defining
a blind annular gap (9) between itself and the metal tube
20 which carries it, said gap being forwardly open, while
the coating of the assembly end of the other tube
presents an annular projection (10) suitable for
penetrating with friction into the gap when the tubes are
assembled together so that the coatings present
25 overlapping surfaces (13, 14).

13/ Piping tubes according to claim 12, in which one of
the overlapping surfaces (13, 14) of the coatings
presents one or more bulges (15) while the other presents
30 one or more corresponding indentations (16).

14/ Piping tubes according to any one of claims 8 to 14,
having removable caps (5, 6) engaged on or in the
assembly ends provided with their coatings to protect the
35 joint surfaces (7, 8; 13, 14) of the coatings.